

The RF Line CATV Amplifier Module

Features

- Specified for 77-, 110- and 128-Channel Loading
- Lower DC Current Requirements
- Excellent Distortion Performance
- Excellent DC Current Stability over Temperature
- Silicon Bipolar Transistor Technology
- Unconditionally Stable Under All Load Conditions

Applications

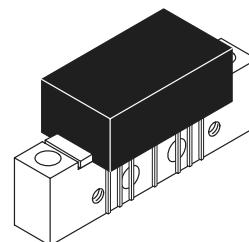
- CATV Systems Operating in the 40 to 870 MHz Frequency Range
- Output Stage Amplifier in Optical Nodes, Line Extenders and Trunk Distribution Amplifiers for CATV Systems
- Driver Amplifier in Linear General Purpose Applications
- Amplifiers Requiring Lower Power Dissipation While Maintaining Excellent Output Performance

Description

- 24 Vdc Supply, 40 to 870 MHz, CATV Forward Power Doubler Amplifier

MHW8185L

**870 MHz
19.4 dB GAIN
128-CHANNEL
CATV AMPLIFIER**



CASE 714Y-04, STYLE 1

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
RF Voltage Input (Single Tone)	V_{in}	+70	dBmV
DC Supply Voltage	V_{CC}	+28	Vdc
Operating Case Temperature Range	T_C	-20 to +100	°C
Storage Temperature Range	T_{stg}	-40 to +100	°C

ELECTRICAL CHARACTERISTICS ($V_{CC} = 24$ Vdc, $T_C = +30^\circ\text{C}$, 75 Ω system unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Frequency Range	BW	40	—	870	MHz
Power Gain	G_p	18	18.5	19	dB
50 MHz		19	19.4	20.5	
Slope	S	0.4	0.9	1.4	dB
40–870 MHz					
Gain Flatness (40–870 MHz, Peak-to-Valley)	G_F	—	0.3	0.8	dB
Return Loss — Input/Output ($Z_0 = 75$ Ohms)	IRL/ORL				
@ 40 MHz		20	—	—	dB
@ $f > 40$ MHz (Derate)		—	—	0.007	dB/MHz
Composite Second Order					dBc
($V_{out} = +40$ dBmV/ch., Worst Case)	CSO_{128}	—	-69	-62	
($V_{out} = +44$ dBmV/ch., Worst Case)	CSO_{110}	—	-70	-64	
($V_{out} = +44$ dBmV/ch., Worst Case)	CSO_{77}	—	-85	-68	

Freescale Semiconductor, Inc.

ELECTRICAL CHARACTERISTICS — continued ($V_{CC} = 24$ Vdc, $T_C = +30^\circ\text{C}$, 75 Ω system unless otherwise noted)

Characteristic		Symbol	Min	Typ	Max	Unit
Cross Modulation Distortion @ Ch 2 ($V_{out} = +40$ dBmV/ch., FM = 55 MHz) ($V_{out} = +44$ dBmV/ch., FM = 55 MHz) ($V_{out} = +44$ dBmV/ch., FM = 55 MHz)	128-Channel FLAT	XMD_{128}	—	-72	-64	dBc
	110-Channel FLAT	XMD_{110}	—	-66	-63	
	77-Channel FLAT	XMD_{77}	—	-69	-67	
Composite Triple Beat ($V_{out} = +40$ dBmV/ch., Worst Case) ($V_{out} = +44$ dBmV/ch., Worst Case) ($V_{out} = +44$ dBmV/ch., Worst Case)	128-Channel FLAT	CTB_{128}	—	-66	-63	dBc
	110-Channel FLAT	CTB_{110}	—	-63	-61	
	77-Channel FLAT	CTB_{77}	—	-70	-68	
Noise Figure	50 MHz	NF	—	5.3	6.2	dB
	550 MHz		—	5.8	—	
	750 MHz		—	6.6	—	
	870 MHz		—	7.8	8.5	
DC Current ($V_{DC} = 24$ V, $T_C = -20$ to $+100^\circ\text{C}$)		I_{DC}	345	365	385	mA

Top View Dimensions:

- Overall width: 1.775 MAX
- Inner width: 1.500
- Distance between mounting holes: 1.085 MAX
- Mounting hole diameter: 2X $\varnothing .168$
- Mounting hole tolerance: $\varnothing .010$ (M)
- Feature callouts: T, F, A

Side View Dimensions:

- Overall height: .600 MAX
- Distance from top to mounting hole center: .250 MAX
- Distance from mounting hole center to bottom: .156
- Bottom feature callouts: Z, F

Detail View Dimensions:

- Feature callouts: 7X $\varnothing .022$, .018
- Feature callouts: 4X .100
- Feature callouts: 2X $\varnothing .163$, .152
- Feature callouts: 2X #6-32 UNC-2B
- Feature callouts: .840 MAX, .510, .465
- Feature callouts: .200, .400, 1.000
- Feature callouts: .165
- Feature callouts: T

Style 1 Pin List:

PIN	1	2	3	4	5	6	7	8	9
RF INPUT	GROUND	GROUND	DELETED	VDC	DELETED	GROUND	GROUND	RF OUTPUT	

Style 2 Pin List:

PIN	1	2	3	4	5	6	7	8	9
RF OUTPUT	GROUND	GROUND	DELETED	VDC	DELETED	GROUND	GROUND	RF INPUT	

Notes:

- INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M, 1994.
- CONTROLLING DIMENSION: INCH.

**CASE 714Y-04
ISSUE E**

Motorola reserves the right to make changes without further notice to any products herein. Motorola makes no warranty, representation, or guarantee regarding the suitability of its products for any particular purpose, nor does Motorola assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation consequential or incidental damages. "Typical" parameters can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals", must be validated for each customer application by customer's technical experts. Motorola does not convey any license under its patent rights nor the rights of others. Motorola products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the Motorola product could create a situation where personal injury or death may occur. Should Buyer purchase or use Motorola products for any such unintended or unauthorized application, Buyer shall indemnify and hold Motorola and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that Motorola was negligent regarding the design or manufacture of the part. Motorola and the Stylized M Logo are registered trademarks of Motorola, Inc. Motorola, Inc. is an Equal Opportunity/Affirmative Action Employer.

Motorola and the Stylized M Logo are registered in the US Patent & Trademark Office. All other product or service names are the property of their respective owners.

© Motorola, Inc. 2003.

How to reach us:

USA/EUROPE/Locations Not Listed: Motorola Literature Distribution; P.O. Box 5405, Denver, Colorado 80217. 1-303-675-2140 or 1-800-441-2447

JAPAN: Motorola Japan Ltd.; SPS, Technical Information Center, 3-20-1, Minami-Azabu, Minato-ku, Tokyo 106-8573 Japan. 81-3-3440-3569

ASIA/PACIFIC: Motorola Semiconductors H.K. Ltd.; Silicon Harbour Centre, 2 Dai King Street, Tai Po Industrial Estate, Tai Po, N.T. Hong Kong. 852-26668334

Technical Information Center: 1-800-521-6274

HOME PAGE: <http://www.motorola.com/semiconductors>



MOTOROLA

**For More Information On This Product,
Go to: www.freescale.com**

MHW8185L/D